REMARKS

The present response is to the Office Action mailed in the above-referenced case on April 16, 2008. Claims 1-35 are standing for examination.

Claim Rejections - 35 USC§ 112

Claims 1-4,6-9, 11-22 and 24-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant's response

Applicant herein cancels claim 1 and its dependent claims. Applicant herein amends claims 12 and 24 to more particularly point out the subject matter regarded as the invention by applicant. Applicant points out that said amendments have removed the language of the claims rejected under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 103

Claims 1-4,6-9, 11-22 and 24-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simons et al. (US 6,332,198) in view of Zadikian et al. (US 6,724,757).

Examiner's rejection

Regarding claims 1 and 12, Simons discloses, in Figs 1, 5, 29, 33A, an automated protection-switching software suite for distribution over multiple processors (12, 16a-16n) of a distributed processor router (10), and executing from a dedicated memory media coupled to each processor, comprising:

an APS server module (14,20,28) running on a first one of the multiple processors (12) for managing communication and distributing configuration and state information (column 7, lines 25-41); and

APS client modules (18a-18n, 22a-22n) running on second ones of the multiple processors (16a-16n), the APS client modules for monitoring interface state information, reporting to the APS server application, and for negotiating with other APS client modules (column 7, lines 25-41);

characterized in that all of the APS software-dependent data resides locally in APS software of individual APS modules (software backup spread on a combination of both primary and backup line cards in order to use the backup processes to quickly begin performing as if it was a failed primary line card (column 42, lines 39-52); data reflecting the network connections established by each primary process may be stored within each of the backup processes or independently on backup line card 1611 (column 42, lines 63-67) *this allows to quickly begin transmitting network data over previously established connections to avoid the loss of these connections and minimize service disruption* (column 43, lines 1-8)) and further characterized in the that APS interface relocation from a primary interface (16a-16b) to a backup interface (16n) is performed through direct communication between the APS client modules running on the processors supporting the involved interfaces (fig 33a; column 42, lines 39-63).

Further, Simons discloses that a level of hot state (software backup) backup is inversely proportional to the resynchronization time, that is, as the level of hot state backup increases, resynchronization time decreases (column 42, lines 4-11; column 1, lines 33-57). Furthermore, backup line *card 16n executes backup processes to provide software backup.* It is preferred that line card 16n be at least partially operational and ready to use the backup processes to quickly begin performing as if it was a failed primary line card (column 42, lines 39-52).

Fig. 29 shows that each primary line card (16a-c) could execute more or less than two backup (for example, backup ATM 468-471) processes (claimed "the plurality of primary interfaces comprise and APS grouping of interfaces connected to a SONET network, and the APS grouping of interfaces is physically supported on one processor").

However, Simons does not expressly disclose that an APS protocol performs a switchover within a 50-millisecond time window.

Zadikian teaches a router that supports the restoration of a majority of network failures within less than 50 ms (column 10, lines 48-55).

It would have been obvious to one ordinary skill in the art at the time the invention was made to add a method that switchover within 50 ms time window, such as that suggested by Zadikian, in the method for supporting multiple redundancy of Simons in order to minimize synchronization time and to provide a fast restoration time.

Applicant's response

Applicant herein amends claim 12 to recite, "A distributed processor <u>packet</u> router". Applicant points out that Simons fails to teach a distributed data packet router, as claimed in applicant's invention. Simons clearly teaches a method and apparatus for supporting multiple redundancy schemes in a single network device allowing customers having different availability/redundancy needs to be serviced by same network device.

Applicant amends claims 12 and 24 similarly and provides claim 12, as amended below:

12. (Currently amended) A distributed processor packet router, comprising:

a plurality of communicating processors each supporting a plurality of external communication interfaces;

an APS server module executing on a first one of the plurality of processors managing communication and distributing configuration and state information regarding groupings of communication interfaces; and

APS client modules executing on all others of the multiple processors, the APS client modules monitoring interface state information, reporting to the APS server module, and negotiating with other APS client modules;

characterized in that the APS server module keeps all client modules current with the configuration and state information, such that in a failure of an interface, switching to a backup is accomplished by a client module in a minimum time, because all necessary

configuration and state information regarding groupings of communication interfaces is locally accessible.

Applicant herein amends claim 12 and 24 to particularly recite a true N:N communication structure between a plurality of processors managing communication and distributing configuration and state information regarding groupings of communication interfaces. Each processor includes an instance of APS module which always includes updated configuration and state information, such that in a failure of an interface, switching to a backup is accomplished by a client module in a minimum time.

Applicant has previously pointed out that Simons primarily teaches a hierarchical fault management system which clearly discloses that; "When master SRM 36 (on master processor) detects or receives notice of a failure or event, it notifies slave logging entity 433a, which notifies master logging entity 431. Master SRM 36 also determines the appropriate corrective action based on the type of failure or event its fault policy. Corrective action may require failing-over one or more line cards 16a-16n or other boards, including central processor 12, to redundant backup boards (col. 35, line 58 to col. 36, line 3). In every instance of backup in the art of Simons, a master application directs the switch-over between the primary and backup devices.

Applicant argues that the present invention, as claimed, teaches an N:N redundancy scheme because APS switchover is accomplished through direct communication between the APS client modules running on the processors supporting the involved interfaces. Applicant points out the benefit of applicant's invention because in Simons' teaching if the designated backup ATM fails also, the network would fail. In applicant's invention all necessary configuration and state information regarding groupings of communication interfaces is locally accessible to all devices and serve as both primary and backup devices for each other, at all times, which is unknown in the art at the time of filing applicant's invention.

Applicant points out that Simons clearly teaches that data reflecting the network connections established by each primary process may be stored within each of the backup processes or independently on backup line card 16n, for example, connection data (CD)

504, 506, 508. Having a copy of the connection data on the backup line card allows the hardware to quickly begin transmitting network data over previously established connections to avoid the loss of these connections and minimize service disruption (col. 42, line 63 to col. 43, line 4). Applicant argues, as shown in accompanying Fig. 33A of Simons that connection data "CD" is not stored locally on each device. If card 16n were to fail in Simons data communication would fail in a backup process. Further, if CD were to be stored on each backup card, when said backup card fails, the network would also fail because Simons fails to teach or suggest that each card is capable of bi-directional communication with each other, as seen in Fig. 33A, and every other Figure in Simons. In Simons, information and communication needed to facilitate true APS is not stored locally in software of each individual APS module, as in applicant's invention and the 50 millisecond time frames could not be accomplished. Applicant therefore strongly maintains that Simon suffers from network data flow interruption because true APS could not possibly be accomplished within the communication structure of Simons.

Independent claim 12 and 24, as amended, are therefore patentable over the art cited and applied, and depended claims 13-22 and 25-35 are now patentable at least as depended from a patentable claim.

As all of the claims as amended and argued are clearly shown to be patentable over the prior art, applicant respectfully requests that the rejections be withdrawn and that the case be passed quickly to issue. If any fees are due beyond fees paid with this response, authorization is made to deduct those fees from deposit account 50-0534. If any time extension is needed beyond any extension requested with this amendment, such extension is hereby requested.

Respectfully Submitted,
Sundara Murugan

By /Donald R. Boys/
Donald R. Boys
Reg. No. 35,074

Central Coast Patent Agency, Inc.
3 Hangar Way, Suite D

Watsonville, CA 95076
831-768-1755